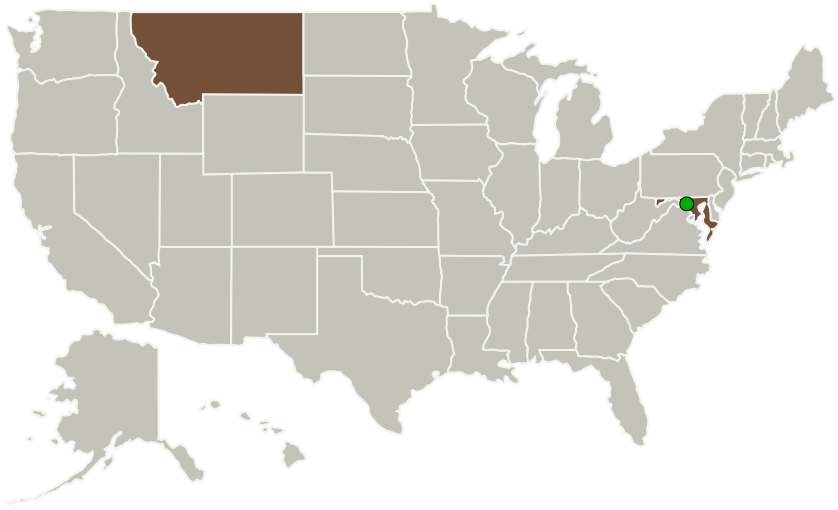
Robust, Low Loss Approach for Fiber to Waveguide Coupling, Phase I

Completed Technology Project (2011 - 2011)

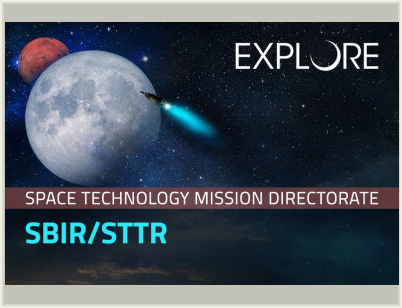
Project Introduction

This NASA Phase I SBIR effort proposes to establish the feasibility of significantly improving coupling at fiber to waveguide interfaces for the manufacture of low loss fiber coupled components being developed for several NASA lidar based initiatives, including LaRC's HSRL program. Efficient and robust coupling of single mode fibers to optical waveguides is essential to the performance and manufacturability of a variety of low loss, fiber coupled non-linear optical components such as amplitude modulators, wavelength converters and integrated waveguide-based photonic devices. The goal of the Phase II effort will be the delivery of HSRL-specific waveguide components to LaRC that incorporate the improvements developed in the SBIR effort. Once optimized, the proposed approach will allow for a robust, low loss method for fiber to waveguide coupling that will be well-suited for air-borne and space based applications, thus advancing NASA's requirement for state-of-the-art lidar technology with emphasis on compactness, efficiency, and performance.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ADVR, Inc.	Lead Organization	Industry	Bozeman, Montana
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



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Primary U.S. Work Locations	
Maryland	Montana

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138472)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

ADVR, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Shirley Mcneil

Co-Investigator:

Shirley Mcneil

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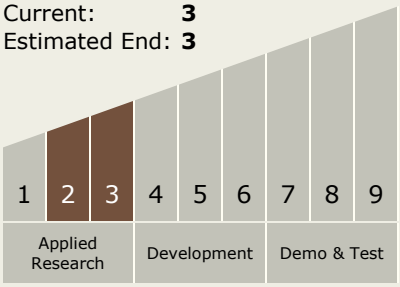
Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System